

AMENDMENTS TO THE CLAIMS:

Listing of claims

Claim 1 (Currently Amended): A structural panel system for use in constructing a building, comprising:

a plurality of panels ~~having~~ comprising:

a generally flat ~~upper~~ first face and ~~lower face~~ in opposing relationship to each other a generally flat second face;

an edge;

a flange disposed peripherally along at least a portion of the length of the edge extending parallel to the surface of the edge and above at least one of the ~~upper and lower~~ first and second faces of the panels; and

a plurality of raised ribs extending perpendicular to and across one of the ~~upper and lower~~ first and second faces of the panels[;], wherein the other of the ~~upper and lower~~ first and second faces of the panels is smooth and wherein the ~~upper and lower~~ first and second faces of the panels, the edge, the flange and the plurality of ribs are integral pieces; and

a fastening device for securing the plurality of panels to each other;

wherein some of the plurality of panels are fastened together in a first configuration such that all the first faces of the some of the plurality of panels are facing the same direction to form an elongated planar wall having, when the elongated planar wall is in a substantially vertical orientation relative to the ground, exterior and interior surfaces, a wall base formed by a first portion of the edges of the some of the plurality of panels, a first and second vertical wall edge formed by a second portion of the edges of the some of the plurality of panels, a second vertical wall edge formed by a third portion of the edges of the some of the plurality of panels, and a wall top formed by a fourth portion of the edges of the some of the plurality of panels;

wherein some of the other plurality of panels are fastened together in a second configuration such that all the first faces of the some of the other plurality of panels are facing the same direction to form an elongated planar floor having, when the elongated planar floor is in a horizontal orientation substantially parallel to the ground, an upper surface formed by the first faces of the some of the other plurality of panels for walking and a lower surface contacting one of the ground and a foundation; and

wherein some of the other plurality of panels are fastened together in a third configuration such that all the first faces of the some of the other plurality of panels are facing the same direction to form a roof.

Claim 2 (Original): The structural panel system of claim 1, wherein the upper and lower faces, the edge, the flange and the plurality of ribs are made of polymer composite material.

Claim 3 (Original): The structural panel system of claim 2, wherein the polymer composite material is mixed with one or more additives selected from the group consisting of lignin, cellulose, silica, aluminosilicates, alkali metal silicates, alkaline earth metal silicates, glass fibers, and metal.

Claim 4 (Original): The structural panel system of claim 1, wherein one or more of the plurality of panels has at least one opening, wherein the opening comprises a frame for a window, door, or ventilation.

Claim 5 (Cancelled).

Claim 6 (Previously Amended): The structural panel system of claim 1, wherein the first and second vertical edges have a 45-degree angle miter cut disposed along the entire length of the edges.

Claim 7 (Original): The structural panel system of claim 1, wherein at least one of the plurality of panels includes at least one conduit, pipe, channel, electrical wire or raceway integrated in the at least one of the plurality of panels.

Claim 8-9 (Cancelled).

Claim 10 (Previously Amended): The structural panel system of claim 1, wherein some of the plurality of panels are fastened together to define a triangular-shaped roof truss.

Claim 11 (Original): The structural panel system of claim 1, wherein the plurality of panels are rectangular having a length dimension equal to the width dimension.

Claim 12 (Original): The structural panel system of claim 1, wherein the plurality of panels are rectangular having a length dimension that is twice the width dimension.

Claim 13 (Currently Amended): A structural panel system for use in constructing a building, comprising:

a plurality of composite polymer panels comprising:

a generally flat ~~upper~~ first face ~~and lower face~~ in opposing relationship to each ~~other~~ a generally flat second face;

an edge disposed peripherally around the ~~upper and lower~~ first and second faces;

a flange disposed peripherally along at least a portion of the length of the edge extending parallel to the surface of the edge and above at least one of the ~~upper and lower~~ first and second faces of the panels, wherein the flange includes a plurality of holes disposed along at least a portion of the length of the flange;

a plurality of ~~horizontal~~ first raised ribs extending perpendicular to and across one of the ~~upper and lower~~ first and second faces of the panels, wherein the other of the ~~upper and lower~~ first and second faces is smooth and wherein the plurality of ~~horizontal~~ first raised ribs are substantially parallel to each other; and

a plurality of ~~vertical~~ second raised ribs extending perpendicular to and across the same face as the plurality of ~~horizontal~~ first raised ribs, wherein the plurality of ~~vertical~~ second raised ribs intersect the plurality of ~~horizontal~~ first raised ribs at approximately 90-degree angles;

wherein the ~~upper and lower~~ first and second faces, the edge, the flange and the plurality of ~~horizontal and vertical~~ first and second raised ribs are integral pieces; and

a fastening device for securing the plurality of panels to each other;

~~wherein some of the plurality of panels are fastened together to form an elongated planar wall having exterior and interior surfaces, a base, a first and second vertical edge, and a top; wherein some of the plurality of panels are fastened together to form an elongated planar floor having an upper surface for walking and a lower surface contacting one of the ground and a foundation; and wherein some of the plurality of panels are fastened together to form a roof.~~ wherein some of the plurality of panels are fastened together in a first configuration such that all the first faces of the some of the plurality of panels are facing the same direction to form an elongated planar wall having, when the elongated planar wall is in a substantially vertical orientation relative to the ground, a wall base formed by a first portion of the edges of the some of the plurality of panels, a first vertical wall edge formed by a second portion of the edges of the some of the plurality of panels, a second vertical wall edge formed by a third portion of the edges of the some of the plurality of panels, and a wall top formed by a fourth portion of the edges of the some of the plurality of panels;

wherein some of the other plurality of panels are fastened together in a second configuration such that all the first faces of the some of the other plurality of panels are facing the same direction to form an elongated planar floor having, when the elongated planar floor is in a horizontal orientation substantially parallel to the ground, an upper surface

formed by the first faces of the some of the other plurality of panels for walking and a lower surface contacting one of the ground and a foundation; and

wherein some of the other plurality of panels are fastened together in a third configuration such that all the first faces of the some of the other plurality of panels are facing the same direction to form a roof.

Claim 14 (Original): The structural panel system of claim 13, wherein the composite polymer material is selected from the group consisting of virgin or recycled polyolefins.

Claim 15 (Original): The structural panel system of claim 13, wherein the composite polymer material includes the addition of one or more additives selected from the group consisting of naturally-occurring and other materials such as sugar cane bagasse, rice husks, nut shells, wood, sand, clay, talc, glass fibers, and metal.

Claim 16 (Previously Amended): The structural panel system of claim 13, further comprising a plurality of rods integral to the plurality of panels for increasing dimensional stability of the panel.

Claim 17 (Currently Amended): A structural panel system for use in constructing a building, comprising:

a plurality of composite polymer panels comprising:

a generally flat ~~upper~~ first face ~~and lower face~~ in opposing relationship to each other a generally flat second face;

an edge disposed peripherally around the upper and lower faces;

a flange disposed peripherally along at least a portion of the length of the edge extending parallel to the surface of the edge and above at least one of the ~~upper and lower~~ first and second faces of the panels, wherein the flange includes a plurality of holes disposed along at least a portion of the length of the flange;

a plurality of ~~horizontal~~ first raised ribs extending perpendicular to and across one of the ~~upper and lower~~ first and second faces of the panels, wherein the other of the ~~upper and lower~~ first and second faces is smooth and the plurality of ~~horizontal~~ first raised ribs are substantially parallel to each other;

a plurality of ~~vertical~~ second raised ribs extending perpendicular to and across the same face as the plurality of ~~horizontal~~ first raised ribs, wherein the plurality of ~~vertical~~ second raised ribs intersect the plurality of ~~horizontal~~ first raised ribs at approximately 90-degree angles;

a fastening device for securing the plurality of panels to each other; and

at least one longitudinally-extending reinforcing rod attached to between and extending substantially perpendicularly to two oppositely-facing portions of the edge of at least one of the plurality of composite polymer panels;

wherein the ~~upper and lower~~ first and second faces, the edges, the flanges and the plurality of ~~horizontal and vertical~~ first and second raised ribs are integral pieces and wherein some of the plurality of panels are fastened together and assembled into a horizontal floor substantially parallel to the ground, wherein some of the plurality of panels are fastened together and assembled into a roof opposite the floor, and wherein some of the plurality of panels are fastened together and assembled into a wall between the horizontal floor and the roof thereby defining an interior space.

Claim 18 (Original): The structural panel system of claim 17, wherein the wall includes an opening defining a frame for a door.

Claim 19 (Original): The structural panel system of claim 17, where the roof is a pitched roof.

Claim 20 (Previously Amended): A method of constructing a structure defined by a ~~horizontal~~ floor, a roof opposite the floor, and a wall between the horizontal floor and the roof, comprising the steps of:

providing a plurality of pre-fabricated structural panels, wherein the structural panels comprise a generally flat ~~upper first face and lower face~~ in opposing relationship to each other a generally flat second face; an edge; a flange disposed peripherally along at least a portion of the length of the edge extending parallel to the surface of the edge and above at least one of the ~~upper and lower~~ first and second faces of the panels; a plurality of raised ribs extending perpendicular to and across one of the ~~upper and lower~~ first and second faces of the structural panels; wherein the other of the ~~upper and lower~~ first and second faces is smooth and the ~~upper and lower~~ first and second faces, the edge, the flange and the plurality of ribs are integral pieces; and wherein the panels are made of polymer composite material;

providing a schematic drawing depicting assembly procedures;

fastening the structural panels together in accordance with the schematic drawing by abutting the flange of one panel to the flange of another panel to form the ~~horizontal~~ floor, roof and wall; and

fastening the floor, roof and wall together to form a structure.

Claim 21 (Original): The method of claim 20, further comprising the step of compressing a composite material to form a plurality of pre-fabricated structural panels.

Claim 22 (Currently Amended): The structural panel system of claim 1, further comprising at least one longitudinally-extending reinforcing rod, wherein the reinforcing rod is attached between and extends substantially perpendicularly to two oppositely-facing portions of the edge of at least one of the plurality of panels that are fastened together in a first configuration to form an elongated planar wall.

Claim 23 (Original): The structural panel system of claim 13, further comprising at least one longitudinally-extending reinforcing rod.

Claim 24 (New): The structural panel system of claim 22, wherein the at least one longitudinally-extending reinforcing rod bisects the one of the plurality of panels.